



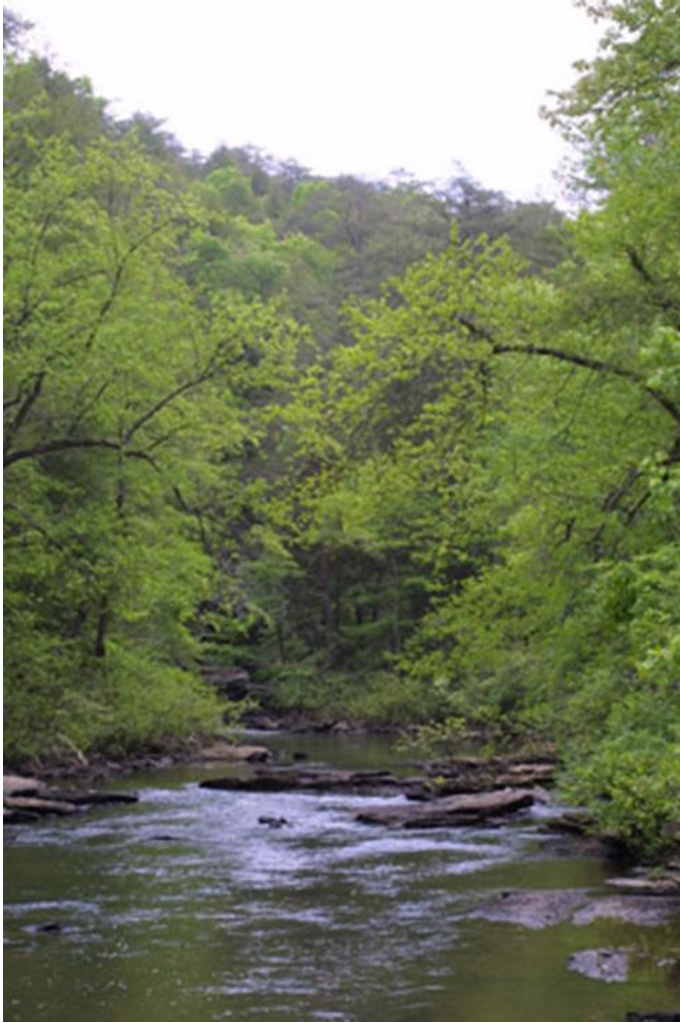
Department of
**Environment &
Conservation**

How to Get Your Wastewater Plans Approved Faster

May 17, 2018

Environmental Show of the South - Chattanooga

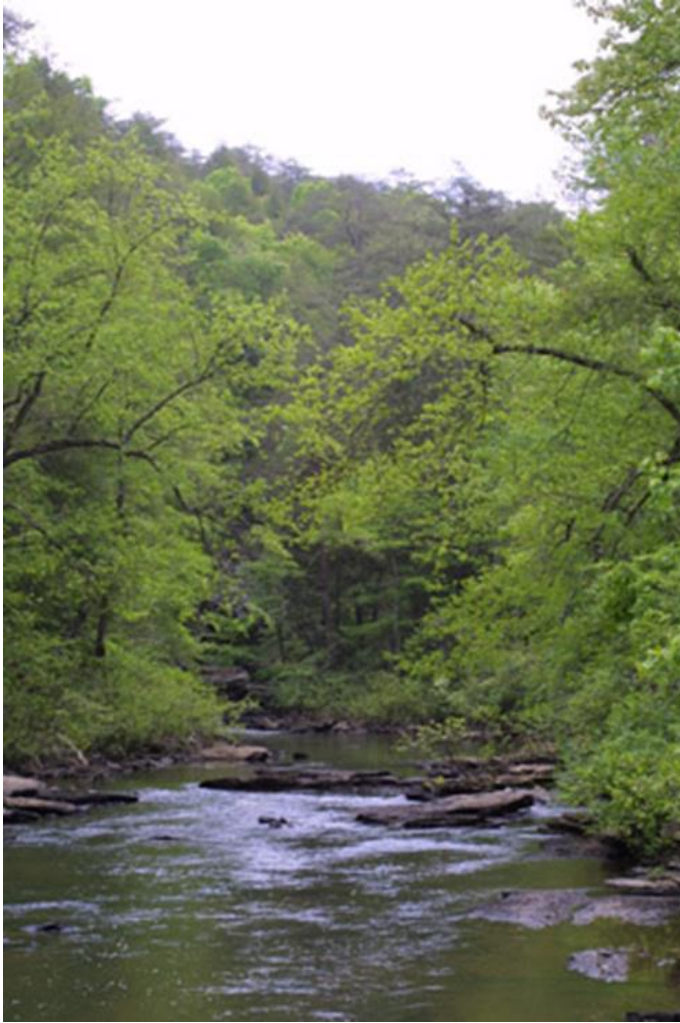
Mission – Division of Water Resources



To protect and improve waters of the state and to safeguard public health for all Tennessean's through regulatory activities, education and outreach implemented by a professional workforce.

THANK YOU because YOU actually DO IT!

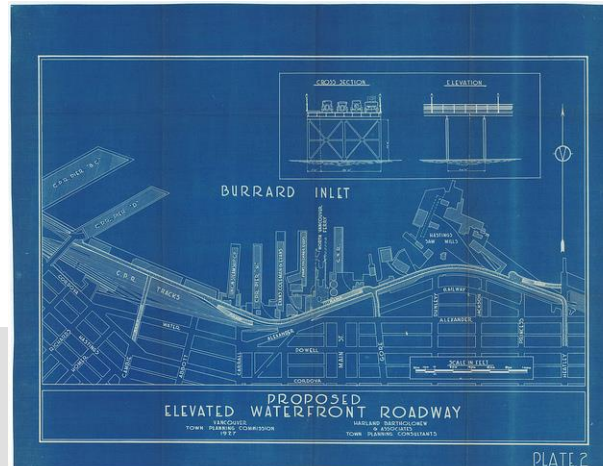
Mission – DWR – Engineering Services Unit



- Define standards and review engineering construction documentation based on **generally accepted water & wastewater standards** and including:
 - PERs (Alternatives Analysis based on **LIFE CYCLE COSTS**)
 - Preliminary Plans & Engineering Report/Basis of Design
 - Final Construction Documentation
- Reflects → fiduciary responsibility
- Target the big picture

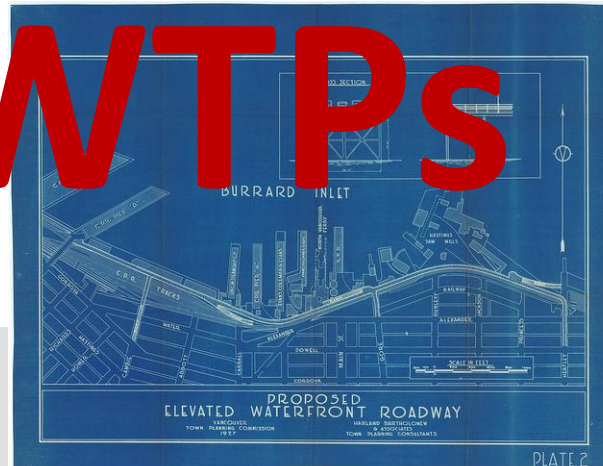
Coordinated Permit & Plans Process

- Rule 0400-40-02: REGULATIONS FOR
 - PLANS, SUBMITTAL, AND APPROVAL;
 - CONTROL OF CONSTRUCTION;
 - CONTROL OF OPERATION
- Gives TDEC-DWR **authority & responsibility** to
 - **Approve** WW construction and engineering documents
 - **Define submittal requirements**
 - Generate design document **checklists**
 - Coordinates **permitting and construction document review and approval** process between owner, engineer, DWR & funding agencies.



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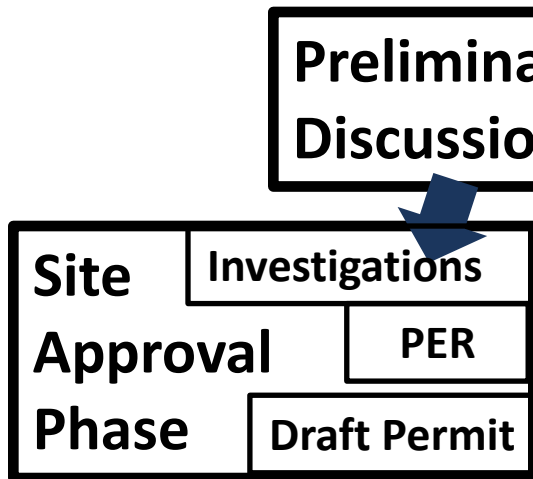
Envisions “4” Step Process (per Design Criteria)

Preliminary Project Discussion



- Permittee + PE firm requests and prepares for meeting
- DWR (Plans, Permitting, Natural Resources, Water Quality) (+ funding agency?) prepares and attends
- Generates path forward for permittee and PE firm

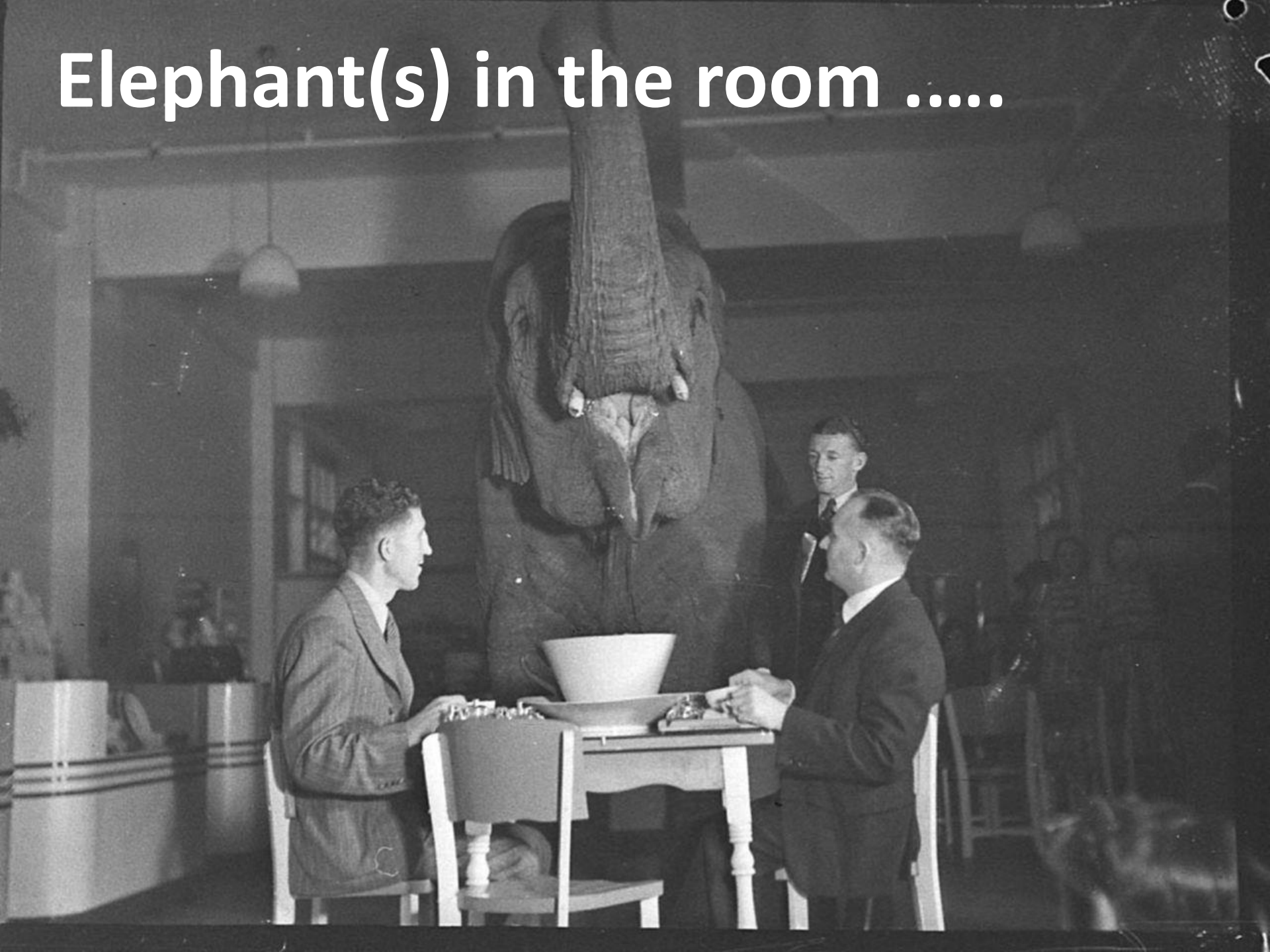
Step 2



Investigations

- Discharge (NPDES) or Dispersal (by Land App & Reuse Alternatives)→ Receiving Water Assessments and Classification
- Assimilative Capacities
 - DO ← Assessments + Modelling, Anti-deg
 - Toxics ← Anti-deg
 - Nutrients ← Nutrient Framework
- Alternative Analysis
 - Anti-deg → social and economic justification
 - Limits → Technology → LCCAs → PER
- Permit negotiations with TDEC-DWR ← NOT JUST PERMIT LIMITS FROM TDEC_DWR
- Draft permit

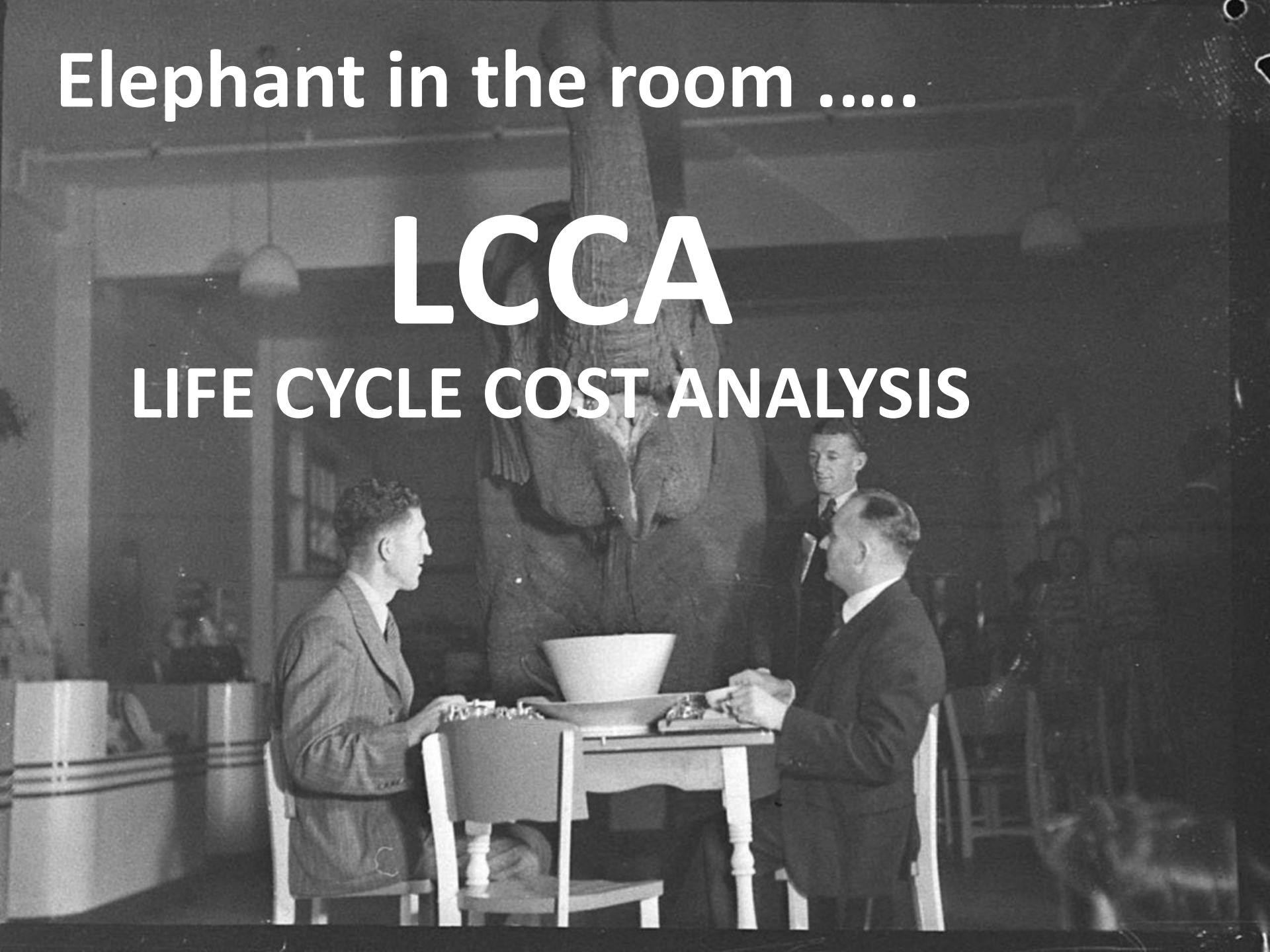
Elephant(s) in the room



Elephant in the room

LCCA

LIFE CYCLE COST ANALYSIS



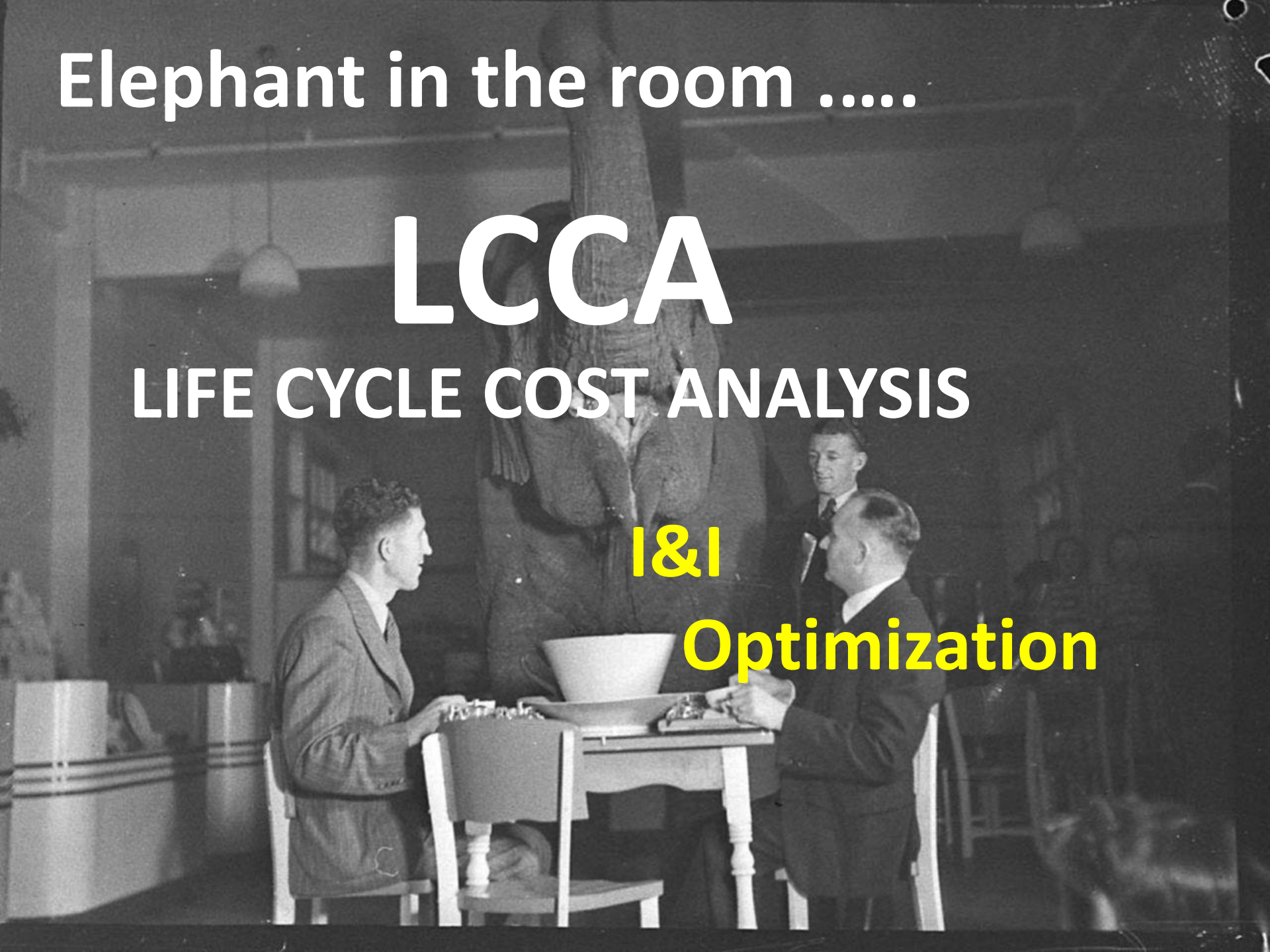
Elephant in the room

LCCA

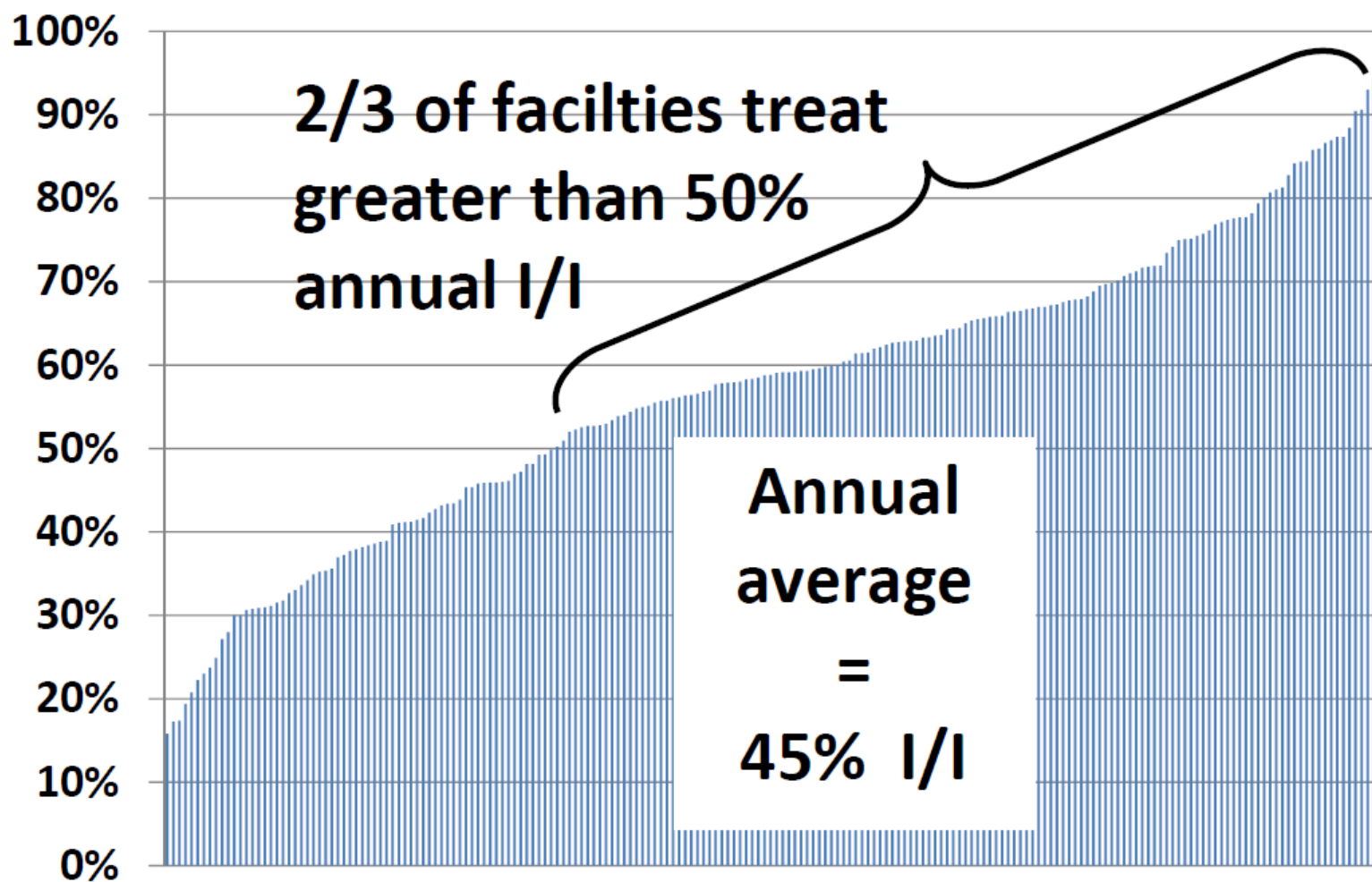
LIFE CYCLE COST ANALYSIS

I&I

Optimization



If we roll up state-wide data



Inflow and Infiltration

- **120 Billion gallons of I&I** treated in TN annually
- **331 MGD of I&I on average per day** treated in TN
- Public Health/Environment:
 - **181 of 242 (or 82%) of municipal WWTPs exceed their rated capacity in the event of a 2 year 24 hr storm (3.4 inches)**
- Cost to treat I&I in Tennessee (@ \$1.80/1000 gallons) =
\$200,000,000/year

Does not include **water that does not get to or that exceeded the influent flow meter capacity of the WWTP.**

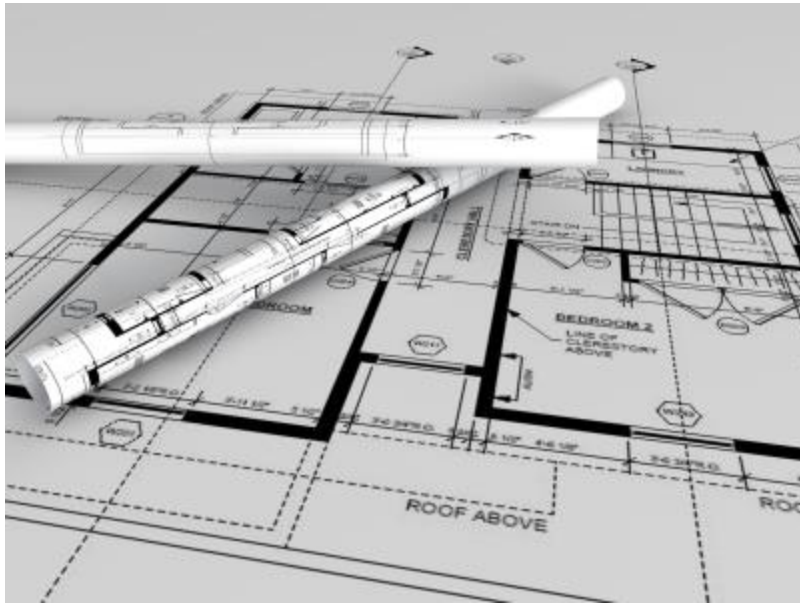
Does not include extra **debt service and depreciation** on **extra** capacity already installed.

I&I Implications are far reaching

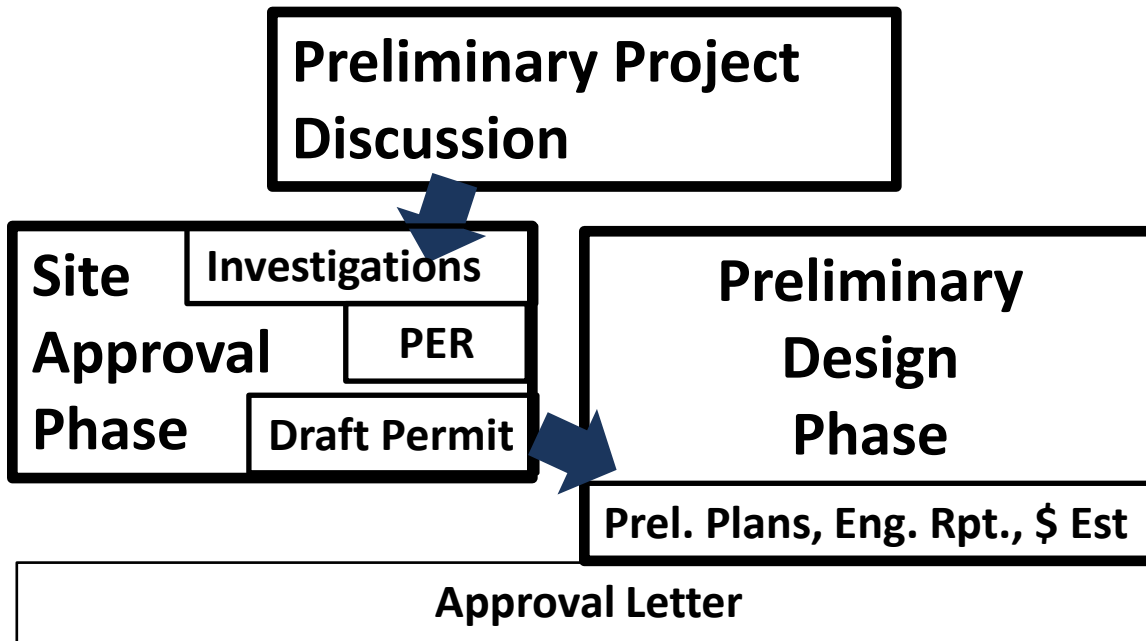
- \$\$\$\$ to pump in addition to treat I&I → higher maintenance costs → higher operational costs → **HIGHER SEWER RATES.**
- **Loss of WWTP CAPACITY** available to future customers or ADDITIONAL COMMUNITY DEVELOPMENT
- **MORATORIUMS** on development
- **DEGRADATION** OF RECEIVING WATERS → ALGAE → INCREASING WATER TREATMENT challenges and HABs AND **DIMINISHMENT** OF RECREATIONAL OPPORTUNITIES and QUALITY OF LIFE
- It means a WWTP **upgrade LARGER AND SOONER** than necessary

Emphasis on Preliminary Design Review→

- Requirement for the “good idea fairy” to leave the building at the end of the Preliminary Design Phase.



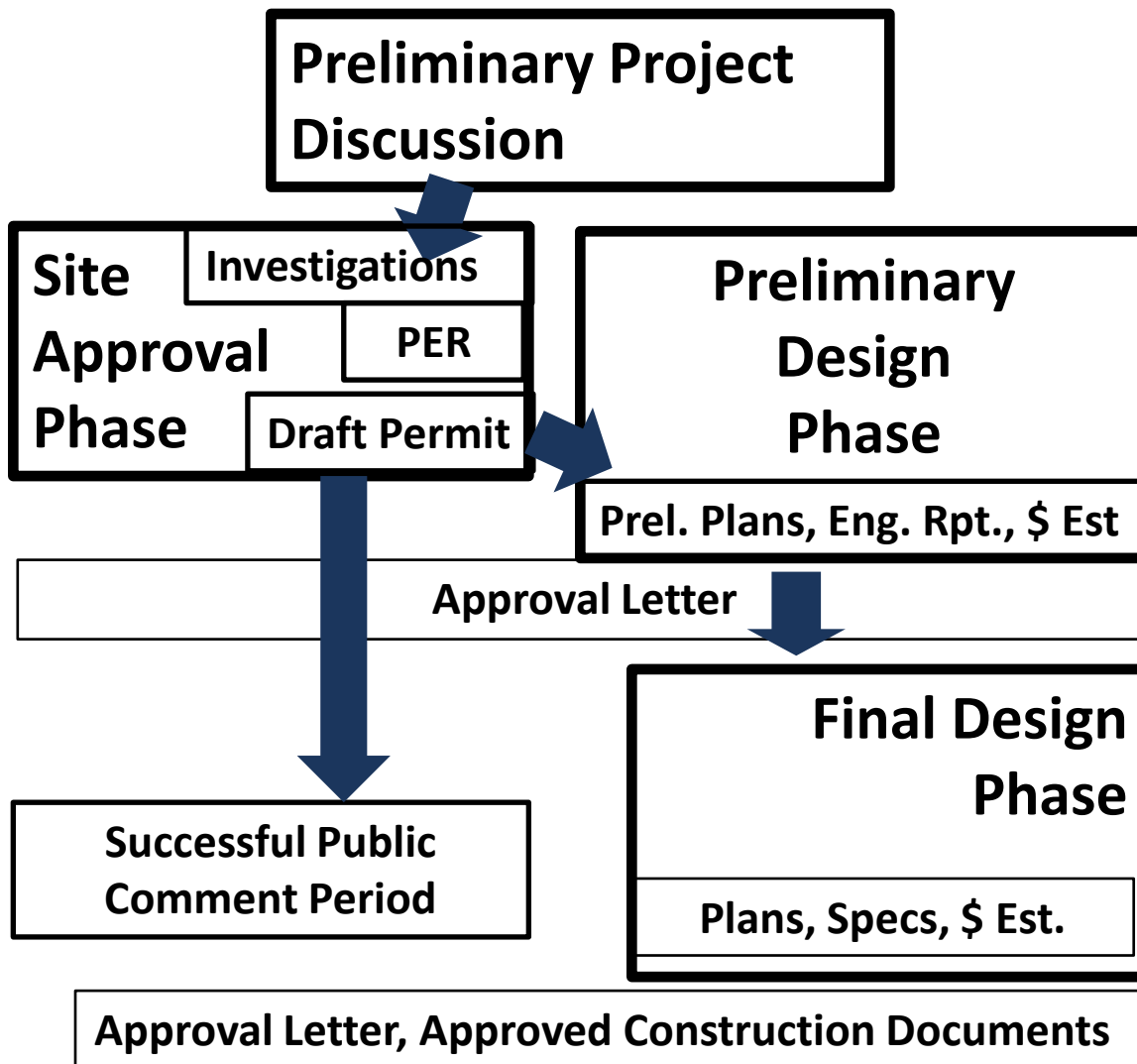
Step 3



Chosen alternative →

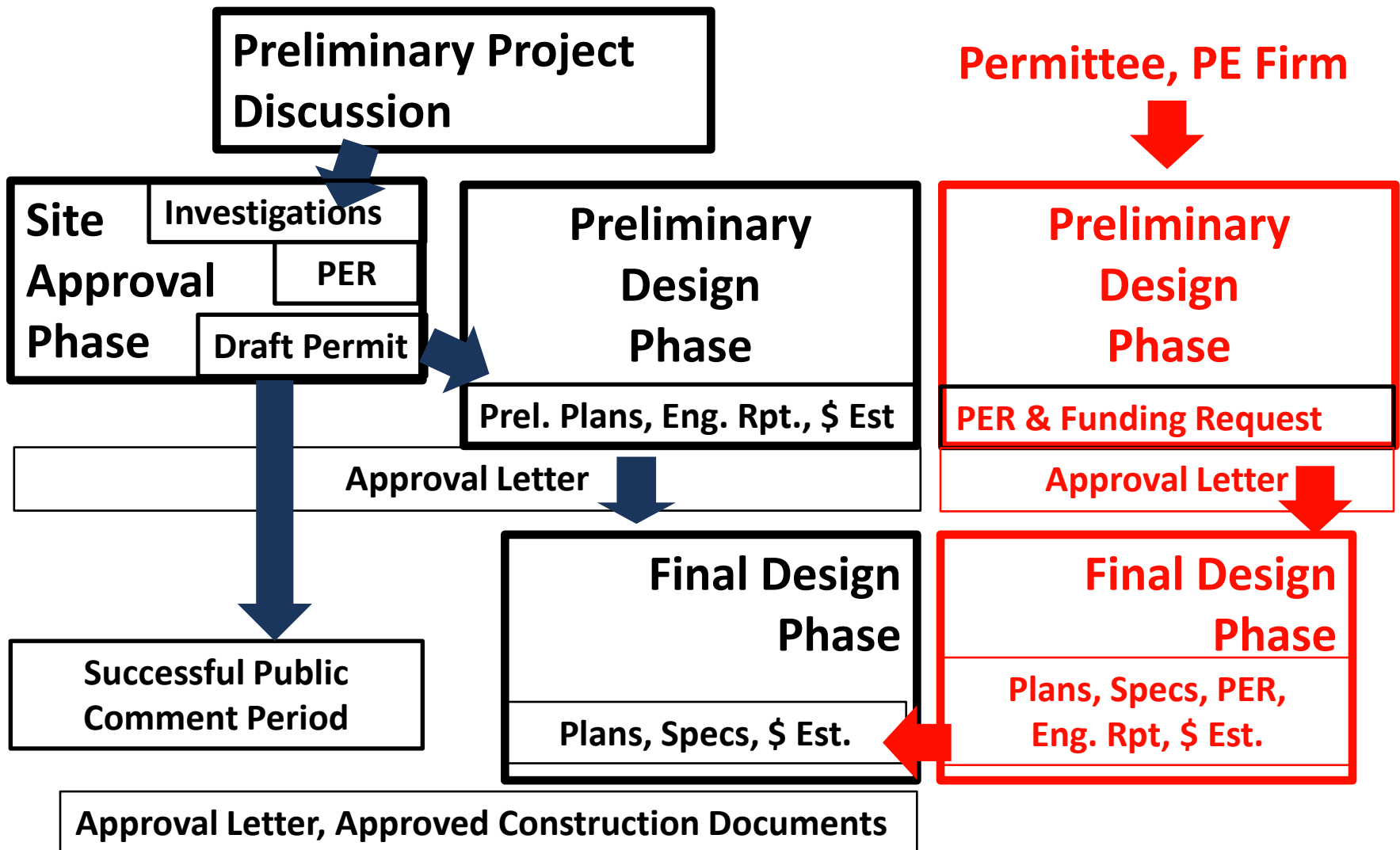
- Preliminary plans
- Engineering Report (Basis of Design, Design Development Report, Design Memo) → demonstrate that PE has exercised due diligence in:
 - influent characterization
 - treatment process selection
- Cost estimate

Step 4

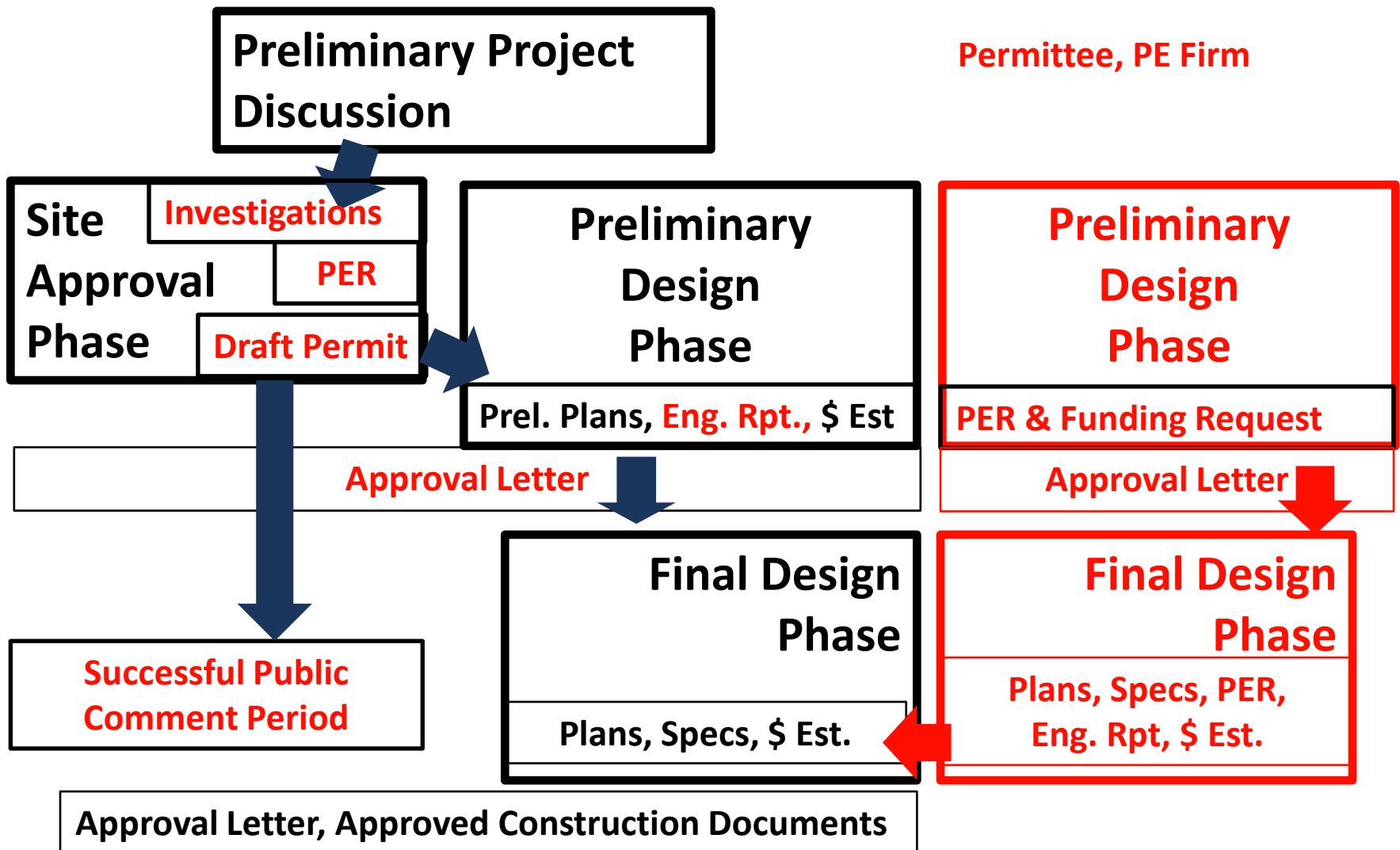


- Safety, maintainability, expandability, operability (flexibility & parameter visibility or instrumentation)
- Sound procurement method

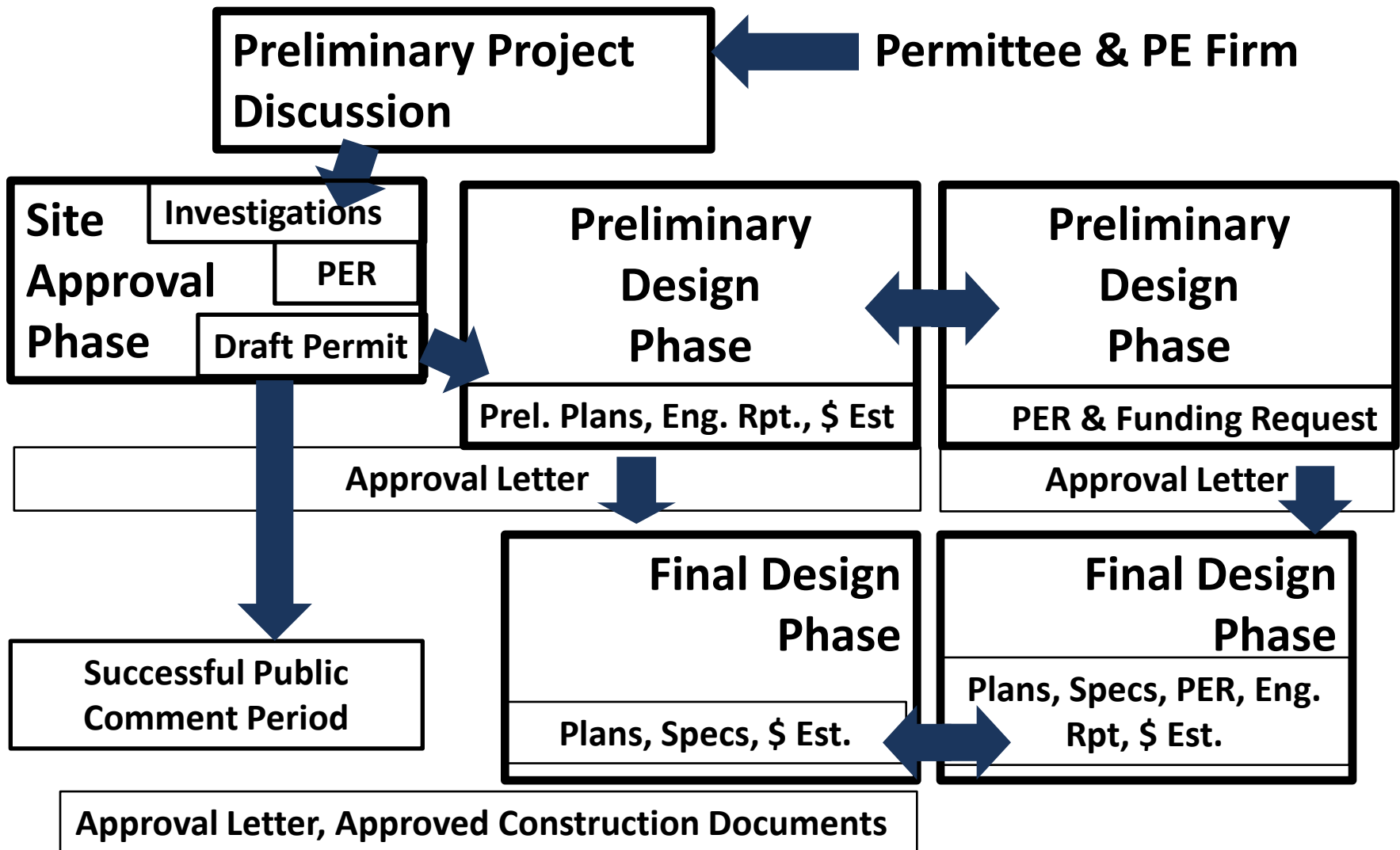
Delays & Problems



Delays & Problems

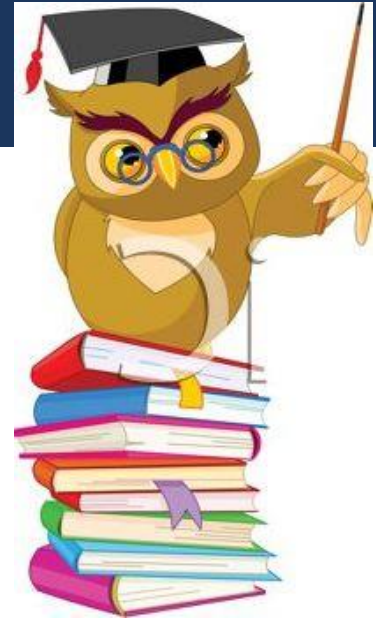


“Generic” Solution



References

- TCA 69-3-103 and -108
- Rules **0400-40-02**, -05, -11, and -16
- DWR-NPDES/SOP-G-(001)-
WW Design Criteria.01-110117, ***Design
Criteria for Review of Sewage Works
Construction Plans and Documents, Chapter 1,
General Engineering Requirements***



For questions, comments, recommendations:
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